Volunteer Lake Assessment Program Individual Lake Reports

CAPTAIN POND, SALEM, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	960	**Max. Depth (m):**	8.6	**Flushing Rate (yr^{1})**	2.1
Surface Area (Ac.):	90	**Mean Depth (m):**	2.5	**P Retention Coef:**	0.65
Shore Length (m):	2,600	**Volume (m^3):**	874,000	**Elevation (ft):**	156

TROPHIC CLASSIFICATION

Year	Trophic class
1987	MESOTROPHIC
2002	MESOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

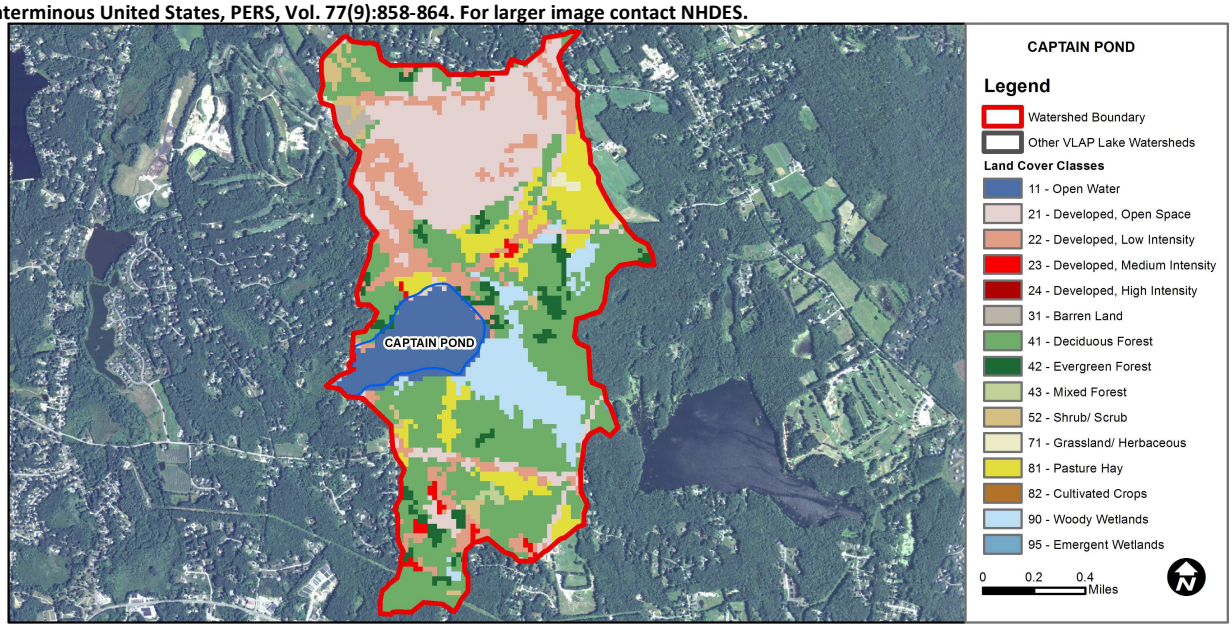
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed.
	Chlorophyll-a	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

CAPTAIN POND - CAMP HADAR	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
CAPTAIN POND - GIRLS INC OF HAVERHILL BEACH	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calcuate geometric mean. More data needed.
CAPTAIN POND - CAMP Y WOOD BEACH	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
CAPTAIN POND - CAMP OTTER SWIM AREA BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
CAPTAIN POND - CAPTAIN'S BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



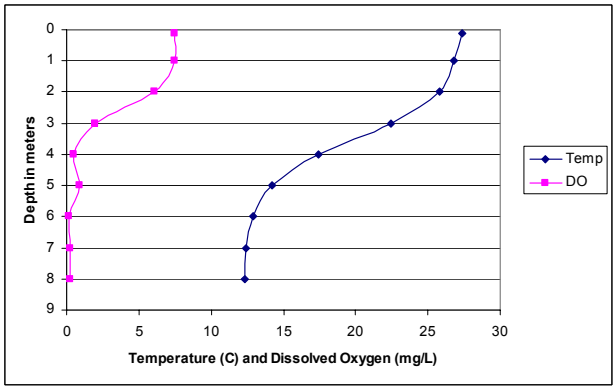
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	7.86	Barren Land	0.72	Grassland/Herbaceous	0.35
Developed-Open Space	20.9	Deciduous Forest	34.62	Pasture Hay	9.1
Developed-Low Intensity	11.8	Evergreen Forest	3.53	Cultivated Crops	0
Developed-Medium Intensity	1.09	Mixed Forest	0.25	Woody Wetlands	8.07
Developed-High Intensity	0	Shrub-Scrub	1.75	Emergent Wetlands	0.08

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
CAPTAINS POND, SALEM, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were elevated in August and average levels typically exceed the NH median. Historical trend analysis indicates widely fluctuating chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and chloride levels were elevated.
- **E. COLI:** E. coli levels in Buzzell Cove were elevated above the state standard for surface waters in July.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were above average for most NH lakes. Historical trend analysis indicates a relatively stable epilimnetic (upper water layer) phosphorus level. Tributary and cove phosphorus levels were also slightly above average.
- **TRANSPARENCY:** Historical trend analysis indicates transparency has remained relatively stable since monitoring began, generally ranging between 2.0 and 2.5 meters.
- **TURBIDITY:** Turbidity levels were generally elevated in August likely due to low water levels and higher algal growth.
- **PH:** pH levels were generally sufficient to support aquatic life, however decrease to critical levels in the hypolimnion (lower water layer).
- **RECOMMENDED ACTIONS:** Investigate cause of elevated E. coli level in Buzzell Cove. Approach town and/or state road agents to discuss elevated conductivity and chloride levels and the potential for a low salt zone or salt alternative. Educate watershed residents on reducing stormwater runoff from their properties utilizing the "NH Homeowner's Guide to Stormwater Management".

Dissolved Oxygen & Temperature Profile



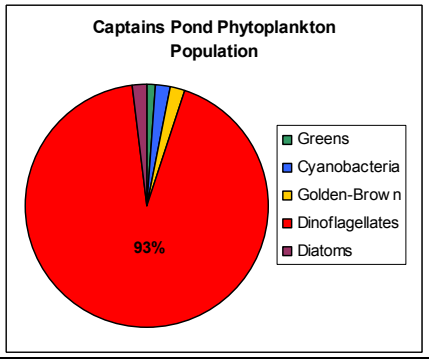


Table 1. 2012 Average Water Quality Data for CAPTAINS POND

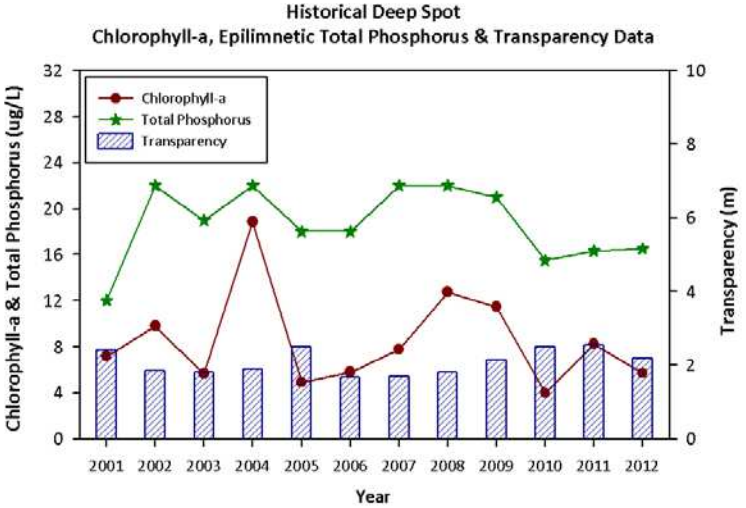
Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
42 Plaisted				192.0		15			0.81	7.27
7 Captains Dr			39	206.5		20			1.69	7.2
Boat Launch			35	198.4		18			1.17	7.15
Buzzell Cove				197.5	640	19			2	7.2
Camp Y Wood				195.6		14			1.22	7.19
Gallow				191.0		13			0.67	7.31
Deep Epilimnion	17.6	5.71	43	198.2		17	2.18	2.55	1.27	7.15
Deep Hypolimnion				195.7		23			1.64	6.6
Inlet			42	195.5		16			1.33	7.25
Outlet				195.0		18			1.43	7.15
Ymca				191.0		21			1.03	7.24

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate greatly, but not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.



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